

## PATENT COOPERATION TREATY

REC'D 25 OCT 2005

PCT

WIPO

PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference WO 21.1152	<b>FOR FURTHER ACTION</b>	
		See Form PCT/PEA/410
International application No. PCT/EP2004/008278	International filing date (day/month/year) 22.07.2004	Priority date (day/month/year) 24.07.2003
International Patent Classification (IPC) or national classification and IPC B28C7/04, B01F15/04, B01F5/24, B01F15/00, G05D11/13		
Applicant SERVICES PETROLIERS SCHLUMBERGER et al.		

1. This report is the International preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 7 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a.  (sent to the applicant and to the International Bureau) a total of 15 sheets, as follows:
    - sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the International application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b.  (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

Date of submission of the demand 27.01.2005	Date of completion of this report 26.10.2005
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Orij, J Telephone No. +31 70 340-4563



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/008278

**Box No. I Basis of the report**

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:

- international search (under Rules 12.3 and 23.1(b))
- publication of the international application (under Rule 12.4)
- international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements\* of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):

**Description, Pages**

1-8 received on 27.01.2005 with letter of 26.01.2005

**Claims, Numbers**

1-10 received on 02.03.2005 with letter of 26.01.2005

**Drawings, Sheets**

1/5 as originally filed  
25-5/5 received on 27.01.2005 with letter of 26.01.2005

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (specify):
- any table(s) related to sequence listing (specify):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (specify):
- any table(s) related to sequence listing (specify):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/008278

---

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

**1. Statement**

Novelty (N)	Yes: Claims	1-10
	No: Claims	
Inventive step (IS)	Yes: Claims	3,9,10
	No: Claims	1,2,4-8
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

---

**Box No. VII Certain defects in the international application**

---

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

---

**Box No. VIII Certain observations on the international application**

---

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)

International application No.  
PCT/EP2004/008278

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Reference is made to the following documents:
  - D1: WO-A-98/34721 (DAVIES CLIVE ERIC ; IND RES LTD (NZ)) 13 August 1998 (1998-08-13)
  - D2: US-A-3 767 170 (MORGENSTERN H) 23 October 1973 (1973-10-23)
  - D3: DE-B-12 33 760 (BUCKAU WOLF MASCHF R) 2 February 1967 (1967-02-02)
  - D4: US-A-3 300 193 (BADGETT CHARLES O) 24 January 1967 (1967-01-24)
2. The following statements are made in the light of the comments stated in item VIII of this letter.
  - 2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document) a method for obtaining a mixture of solid components (page 3, lines 10-17) stored in containers (5,6) having a bottom opening (figure 1) and, in a predetermined ratio comprising providing for each component a fluidized flow at a predetermined individual flow rate corresponding to the ratio of said component in the mixture (page 4, lines 27-33); conveying each flow to the inlet of a static mixer exclusively by gravity (page 2, lines 36-39), the mixer continuously producing at an outlet a flow of the mixture.

The subject-matter of claim 1 differs from this known method in that air is injected into each container near the bottom opening to render the component flowable.

The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

The objective problem to be solved by the present invention may therefore be regarded as how to ensure the flow rate of each component is solely dependent on the surface area defined by a valve (description paragraphs 0020 - 0021).

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), because injecting air into each container near the bottom opening to render the component flowable is described

INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)

International application No.  
PCT/EP2004/008278

in document D2 (cf. figure 3; column 5, lines 27-56) as providing the same advantages as in the present application. The skilled person would therefore regard it as obvious to include this feature in the method described in document D1 in order to solve the problem posed.

Hence claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT).

2.2 The document D1 is regarded as being the closest prior art to the subject-matter of claim 5, and discloses (the references in parentheses applying to this document) an apparatus for preparing a mixture of solid components in a predetermined ratio comprising a hopper (5,6) for each individual components (13,14), said hopper including lateral walls and a bottom with an opening (figure 1) means for adjusting the flow rate of each component flowing from the opening, ~~for adjusting the flow rate of each component flowing from the opening~~ (see item VII) based on the ratio of each component in the mixture (page 4, lines 27-33), a static mixer (3 in figure 1; 7 in figure 3) having an inlet into which all individual flows are conveyed exclusively by gravity, said mixer continuously producing at an outlet a flow of mixture (page 2, line 31 - page 3, line 17).

The subject-matter of claim 5 differs from this known apparatus in that said hopper further comprising a grid extending from the lower portion of the lateral walls to the opening, and means for introducing air into the gap between the hopper bottom and the grid; *said grid permeable to air but not to the component stored in the hopper* (see item VIII).

The subject-matter of claim 5 is therefore new (Article 33(2) PCT).

The objective problem to be solved by the present invention may therefore be regarded as how to ensure the flow rate of each component is solely dependent on the surface area defined by a valve (description paragraphs 0020 - 0021).

The solution proposed in claim 5 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT), because a hopper comprising a grid extending from the lower portion of the lateral walls to the opening, and means for introducing air into the gap between the hopper bottom and the grid; *said grid permeable to air but not to the component stored in the hopper* is

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

**PCT/EP2004/008278**

described in document D2 (cf. figure 3; column 5, lines 27-56) as providing the same advantages as in the present application. The skilled person would therefore regard it as obvious to include this feature in the method described in document D1 in order to solve the problem posed.

Hence claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT).

- 3.1 The features of the dependent claims 2,4,6-8, are as such, known from the documents D1-D4, see the corresponding passages cited in the search report.
- 3.2 Monitoring an effective flow rate of one selected component of the mixture and based on this value adjusting the individual flow rates of each other components, the apparatus to process this and a sensor system to measure the flow rates, as described in claims 3,9,10 is neither known from, nor rendered obvious by the available prior art.
4. The subject-matter of claims 1-10 is considered as susceptible of industrial application (Article 33(4) PCT).

**Re Item VII**

**Certain defects in the international application**

1. The line "for adjusting ... the opening" is double mentioned in claim 5 and has been interpreted as if one of them has been deleted (Rule 91 PCT).
2. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1-D3 is not mentioned in the description, nor are these documents identified therein.
3. The drawings shall not contain text matter, except a single word or words, when absolutely indispensable, such as "water," "steam," for understanding (see Rule 11.11 (a) PCT).
- 4.1 According to the requirements of Rule 11.13(m) PCT the same feature shall be denoted by the same reference sign throughout the application. This requirement

INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)

International application No.

PCT/EP2004/008278

is not met, for example in view of the use of reference sign 36 in figures 3 and 4; reference sign 51a in figure 6, reference sign 74b in figure 8, etc.

4.2 According to the requirements of Rule 11.13(l) reference signs not appearing in the description shall not appear in the drawings, and vice versa. This requirement is not met in various passages in the description and for example for the reference sign 37 on page 5 and in figure 4.

**Re Item VIII**

**Certain observations on the International application**

1. It is noted that Claim 5 does not meet the requirements of Article 6 PCT, because the claimed apparatus seeks to define the invention by reference to features relating to the apparatus' use, not being part of the claimed invention (cf. the PCT Guidelines 5.37). Hence the part "said grid permeable to air but not to the component stored in the hopper" is not taken into consideration in its assessment.
2. Independent apparatus claim 5 teaches the presence of a grid. A corresponding feature however, is not present in the independent method claim 1. Therefore claims 1 and 5 are not concise as required by Article 6 PCT. Moreover, it appears that the requirements following from Article 6 PCT taken in combination with Rule 6.3(b) PCT and the PCT Guidelines 5.33, that any independent claim must contain all the technical features essential to the definition of the invention are not met.